

REMARKS

The Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action, and are believed to render the claims at issue patentable.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102(b)

With respect to the Office Action, Claims 5, 8, 9 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al. (U.S. Patent 5,838,064).

Applicant respectfully traverses this rejection. FIG. 3 of Shimada is wrong so as to mislead the Examiner to make an unsuitable decision. There are two reference numbers 44 in FIG. 3, one is located on the top portion and one is located on the left portion of the drawing, and the top one is wrong. Referring to FIG. 1 and 4D of Shimada, the plate 12 is a plate disposed above the LSI chip 40 and covered the LSI chip 40. In addition, referring to FIG. 10A and 4D of Shimada, the adhesive 44 is disposed between the plate 12 and the LSI chip 40. Therefore, the adhesive 44 cannot be stuck to the bottom of the heatsink 43. The plate 12 cannot be set around and apart from the adhesive 44 because the adhesive 44 has to contact to the bottom of the plate 12, otherwise the heat generated by the LSI chip 40 may difficult to transfer to the heat sink 43.

Referring to Claim 17 of the present application, the thermal pad is stuck to a bottom of the heatsink and the stabilization plate is also stuck to the bottom of the heatsink. In addition, the stabilization plate is set around and apart from the thermal pad and the die of the chip for making the thermal pad closely contact the die of the chip.

Shimada never suggests or teaches to utilize the plate 12 to surround the die and the thermal pad for making the thermal pad closely compact to the die. Actually, Shimada discloses the upper surface of the LSI chip 40 is attached (e.g. glued) to the lower face of the plate 12 of the supporting member 10 by the adhesive 44 (column 5, lines 64-64). Accordingly, Claim 17 of the present application defines over the cited references. Furthermore, Shimada's plate 12 configured between the adhesive 44 and the heatsink 43 may reduce the heat dissipation efficiency of the cooling means.

The present application discloses a stabilization plate, being located on the bottom of the heatsink and surrounding a die of a chip and a thermal pad coupled to the heatsink, for making the thermal pad closely compact to the die of the chip when the heatsink is located on the chip. The stabilization plate is not disposed between the heatsink and the thermal pad. Accordingly, the stabilization plate has no influence on the heat dissipation efficiency of the cooling assembly. Therefore, the structure of the present application and that of the prior art are different. Furthermore, the function of the plate 12 of the prior art and the function of the stabilization plate are also different.

Referring to Claim 9, the stabilization plate surrounds the thermal pad for making the thermal pad closely compact to the die when the heatsink is located on the die. Therefore, Claim 9 also defines over the cited references.

Accordingly, in view of the invention as a whole, applicant respectfully submits that Claims 9 and 17 define over the cited references and respectfully requests withdrawal of the rejection under 35 U.S.C. § 102(b). Having overcome the rejections in the Office Action, withdrawal of the rejections and expedited passage of the application to issue are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

With respect to the Office Action, Claims 1, 2, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (U.S. Patent 5,838,064) in view of Glenn et al. (U.S. Patent 5,596,485).

Applicant respectfully traverses this rejection. Both Shimada and Glenn never suggest or teach the stabilization plate surrounding the die and the thermal pad. Both of the plate 12 of Shimada and the heat spreader of Glenn are configured above the die, and therefore the heat generated by the die has to conduct to the heatsink through the stabilization plate. As the foregoing description, the structures of the present application and the prior art are different. Further, the functions thereof are also different.

In addition, Shimada discloses that the plate 12 of is made of a material such as a cooper-tungsten alloy, which has a relatively high thermal conductivity (column 4, lines 44-48). As one of prior art knows, the cooper-tungsten alloy is a hard and solid material, not a soft and elastic material. However, the present application disclosed the stabilization plate 508 is made of a soft and elastic material, such as PORON, which has a relatively low thermal conductivity and provides a buffer function for contact the bottom of the heat sink 304 closely (Page 7, lines 18-21). In addition, due to the elasticity of the elastic PORON slice, the clip would not easily shaken after the heatsink is fastened with the clip (Page 10, lines 21-23).

Furthermore, the force caused by an inclination of the heatsink can be absorbed by the stabilization plate of the present application. In the prior art, the force is directly transferred to the thermal pad through the plate 12. Therefore, the stabilization plate of the present application can reduce the force pressed on the thermal pad and keep the transferring heat in a surface-to-surface mode. However, the plate of the prior art

transfers the force to the thermal pad and makes a deformation on the thermal pad. Therefore, the mechanical structures thereof are opposites.

Due to the different heat conduction paths of the prior art and the present application, the heat dissipation efficiencies thereof are different. The conjunctional structures and functions of the stabilization plates of the present application and the prior art are also different. Furthermore, the mechanical structures of the prior art and the present application are opposites. Therefore, even a person having ordinary skill in the art cannot achieve the present application at the time the present application was made.

Accordingly, in view of the invention as a whole, applicant respectfully submits that Claim 1 defines over the cited references and respectfully requests withdrawal of the rejection under 35 U.S.C. § 103(a). Claims 2-4 and 15-16 which depend on Claim 1, also define over the art cited by the Office Action. Having overcome the rejections in the Office Action, withdrawal of the rejections and expedited passage of the application to issue are respectfully requested.

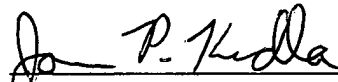
CONCLUSION

Applicant believes that all pending claims are allowable and a Notice of Allowance is respectfully requested. The amendment was made to expedite the prosecution of this application. Applicant respectfully traverses the rejections of the amended claims and reserves the right to re-introduce them and claims of an equivalent scope in a continuation application.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel at the number set out below.

Respectfully submitted,
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